

4.0 CUMULATIVE IMPACTS

4.1 Introduction

This section of the EIR analyzes potential impacts of reasonably foreseeable growth, including the proposed CEQA Project. The State CEQA Guidelines § 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts ..." The State CEQA Guidelines § 15130, as amended, state that the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided for the effects attributable to the Project alone. The discussion should be guided by the standards of practicality and reasonableness and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The following elements are necessary in an adequate discussion of cumulative impacts:

(1) Either:

- a. A list of relevant past, present and probable future projects, producing related or cumulative impacts, including, if necessary, those projects outside the control of the Agency, or
- b. A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency. When utilizing a list, as suggested in paragraph (1) of subdivision (b), factors to consider when determining whether to include a related project should include the nature of each environmental resource being examined, the location of the project and its type.

"Probable future projects" may be limited to those projects requiring an agency approval for an application which has been received at the time the notice of preparation is released, unless abandoned by the applicant; projects included in an adopted capital improvements program, general plan, regional transportation plan, or other similar plan; projects included in a summary of projections or projects (or development areas designated) in a previously approved project (e.g., a subdivision); or those public agency projects for which money has been budgeted.

Lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used.

(2) A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available.





- (3) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigation or avoiding the project's contribution to any significant cumulative effects.
- (4) With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinance or regulations rather than the imposition of conditions on a project-by-project basis.

Cumulative impacts may be discussed in terms of Project impacts, in combination with impacts anticipated for future development (including approved and planned development within the Project area and surrounding affected area). The geographic area for each impact varies, depending on the nature of the impact, whether it is regional, such as air quality, or local, such as noise.

Quantification can be difficult for cumulative impacts, as it requires speculative estimates of impacts including, but not limited to, the following: the geographic diversity of impacts (impacts of future development may affect different areas); variations in time of impacts (many of the Project's and future development impacts, particularly those that are short-term, would occur at different times, and would be reduced or removed before other short-term impacts occurred); and data for future development may change following subsequent approvals. However, every attempt has been made herein to make sound qualitative judgements of the combined effects of, and relationship between, land uses and potential impacts.

4.1 Cumulative Projects

An assessment of cumulative impacts takes into consideration existing conditions plus the proposed project, in combination with projects currently under construction, approved (unbuilt) projects, projects in review, and reasonably foreseeable projects in the project area. The projects listed in Table 4-1 are being considered as related approved/pending and reasonably foreseeable development proposals, as reflected in the City record.

TABLE 4-1					
PENDING/APPROVED/REASONABLY FORESEEABLE PROJECTS					
Residential Projects:	Land Use:	Size:			
1002 Washington Avenue	Townhomes	33 Units			
775 Wolfe Road	Apartment	20 Units			
414 E Evelyn Avenue	Condominiums	18 Units			
113 S. Mary Avenue	Apartment	32 Units			
Other Pending/Approved Residential Projects located in	Residential	Total of 57			
the City of Sunnyvale (Projects less than 15 units)	Projects	Units			
TOTAL		160 Units			
Industrial Projects:	Land Use:	Size:			
1116 N. Mathilda Avenue	Office	101 KSF			
1111 Lockheed Way (Juniper Networks)	Office/R&D	2,540 KSF			
375 N. Pastoria Avenue	Office/Lodge	67 KSF			
1260 Crossman	Office/R&D	222 KSF			
Southeast corner of Mathilda/Evelyn	Office	460 KSF			
1146 & 1198 E. Arques Avenue	Office	142 KSF			
1220 N Mathilda Avenue	Office/R&D	158 KSF			





1350 Geneva Drive	Office/R&D	509 KSF		
Other small Pending/Approved Industrial Projects located	Industrial Projects	11 KSF		
throughout the City of Sunnyvale				
TOTAL		4,210 KSF		
Source: City of Sunnyvale Development Update, August 2002				

NASA AMES DEVELOPMENT PLAN

In addition to the pending and approved projects in the City of Sunnyvale, the National Aeronautics and Space Administration (NASA) is proposing the NASA Ames Development Plan, which is intended to bring new research and development uses to the NASA Ames Research Center (ARC). The NASA ARC is located west of the project site on approximately 2,000 acres of land between Highway 101 and the San Francisco Bay (refer to Exhibit 4-1). NASA has prepared a Draft Environmental Impact Statement (DEIS) pursuant to the National Environmental Policy Act for the proposed NASA Ames Development Plan Project.

The Draft EIS for the proposed project analyzed five project alternatives as summarized below. Alternative 5, the Preferred Alternative, is described in detail:

- ❖ No Project Alternative: Under the No Project Alternative, no new development would be proposed for the NASA ARC. However, NASA would implement several projects that are already approved.
- ❖ Alternative 2: Alternative 2 would allow a total buildout of approximately 9.1 million square feet of floor space, which would include office, research and development, museum, conference center, housing, and light industrial uses.
- ❖ Alternative 3: Alternative 3 would allow a total buildout of approximately 8.2 million square feet of floor space. This alternative is based on the ideas of Traditional Neighborhood Design, and would create a new mixed-use development.
- ❖ Alternative 4: Alternative 4 would allow a total buildout of approximately 10.1 million square feet of floor space, which would include office, research and development, museum, conference center, housing, and light industrial uses.

Alternative 5, The Preferred Alternative: Alternative 5 would allow a total buildout of approximately 8.5 million square feet of floor space, which would include office, research and development, museum, conference center, retail, housing, and light industrial uses. Under Alternative 5, development would occur in each of the four development areas of the NASA ARC: NASA Research Park (NRP), Eastside Airfield, Bay View, and Ames Campus. However, development would be concentrated in primarily in the NRP. Alternative 5 proposes the addition of approximately 2.1 million square feet of new educational, office, research and development, museum, conference center, housing, and retail space in the NRP area. This Alternative would also involve the demolition of approximately 500,000 square feet of non-historic structures and the renovation of approximately 600,000 square feet of existing space. Approximately 1 million square feet of new development (primarily housing) would be located in the Bay View Area. In the Eastfield/Airfield area, Alternative 5 proposed the construction of approximately





Exhibit 4-1 CUMULATIVE PROJECTS LOCATION MAP



150,000 square feet of new space in a new control tower and regional disaster training facility, and the renovation of hangars 2 and 3. Finally, in the Ames Campus Area, Alternative 5 includes the demolition of approximately 400,000 square feet of existing buildings to create space for approximately 500,000 square feet of high-density office and research and development space. The DEIS concludes that the implementation of the NASA Ames Development Plan has the potential to generate environmental impacts in a number of areas, including public policy, traffic, air quality, infrastructure, services, hazardous materials, geology, biology, noise, aesthetics, recreation, cultural resources, and socioeconomics. Most impacts would be reduced to less than significant levels with the implementation of mitigation measures. However, significant and unavoidable impacts related to public policy, traffic/circulation, air quality, water supply, energy, burrowing owls, noise, aesthetics, and housing would still occur despite the implementation of mitigation measures.

DOWNTOWN SPECIFIC PLAN

The City of Sunnyvale is currently preparing a Downtown Specific Plan. Implementation and buildout of the Downtown Specific Plan could result in the development of an additional 138,000 square feet of retail space, 545,000 square feet of office space, and 1,658 residential units beyond existing conditions.

FAIR OAKS/TASMAN GENERAL PLAN AMENDMENT

The City of Sunnyvale recently approved the Fair Oaks/Tasman General Plan Amendment. The General Plan Amendment would allow for the development of an additional 140,000 square feet of retail space, and approximately 770 residential units along Fair Oaks Avenue and Tasman Avenue.

4.2 Cumulative Analysis

Pursuant to § 15355(b) of the State CEQA Guidelines, "The cumulative impact... is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future project." Potential cumulative impacts of the proposed project, in combination with cumulative development projects are discussed below. The precise site-specific impacts of future development have been or would be discussed in appropriate environmental documentation at the time the project is submitted to city staff for approval consideration.

The purpose of this section is to examine the cumulative environmental impacts that would result from future development that would be facilitated by the proposed Specific Plan, as well as other probable future projects, which when considered with the together with the Specific Plan, could increase the severity or significance of environmental effects. Based on the following analysis, cumulative development associated with the proposed Specific Plan and future growth in the City of Sunnyvale would result in potentially significant impacts to traffic, air quality, population and housing, energy and water supply.

AESTHETICS

Construction of development projects can generate short-term visual and aesthetic impacts by exposing construction debris, graded surfaces, and construction vehicles and equipment. Construction activities also generate dust, which can negatively affect the visual character of the area. These types of impacts are short-term and temporary, and are generally considered less than significant. The proposed project would allow for and facilitate future development and construction in the Moffett Park Specific Plan area.





Future construction activities under the direction of the Specific Plan would result in short term and temporary visual impacts. Mitigation measures to reduce potentially significant impacts (dust control, fencing, and screening, etc.) would be implemented on a project-by-project basis. The cumulative visual impacts related to the construction of pending/approved and reasonably foreseeable projects in the City of Sunnyvale would also be mitigated on a project-by-project basis. Therefore, the incremental impact of the proposed project with the implementation of site-specific mitigation measures would result in less than significant cumulative impacts related to construction activities.

The construction of pending and approved projects near the site and within the region would permanently alter the nature and appearance of the area. This would occur through the loss of vacant land and the replacement of underutilized land uses with active urban uses. New building materials, streetlights, and security lighting would also be introduced, which would increase potential light and glare impacts. The visual impacts of development projects are generally assessed and mitigated on a project-by-project basis. All development projects in the City of Sunnyvale would be required to comply with the City's building and site design standards and policies, including the policies and standards in the City's General Plan, Zoning Code, and City Wide and Industrial Design Guidelines. Compliance with these design policies and standards and the implementation of site-specific mitigation measures would reduce potential visual impacts to less than significant levels. Therefore, the incremental visual impacts that would occur from development facilitated by the proposed Specific Plan would be considered less than significant.

AIR QUALITY

The cumulative region of influence for air quality is the San Francisco Bay Area. Future development that would be facilitated by the implementation of the proposed Specific Plan would increase traffic levels along the local and regional transportation system. As described in Section 3.2, *Air Quality*, the vehicle emissions generated by the future development that would be facilitated by the proposed Specific Plan would exceed the air quality thresholds of the Bay Area Air Quality Management District, and would result in significant, but mitigable, impacts. Pending and approved projects in the City of Sunnyvale would also result in an increase in vehicle emissions and as a result, significant and unavoidable cumulative impacts would occur (refer to Section 3.2, *Air Quality*). The development of additional projects within the City of Sunnyvale in the future would perpetuate additional air quality impacts from vehicle operations.

Future development that would be facilitated by the implementation of the proposed Moffett Park Specific Plan would potentially result in significant short-term construction related air quality impacts. These impacts are generally mitigated through adherence to Air Quality Control measures outlined by the Bay Area Air Quality Management District (BAAQMD). These standard measures have been developed to reduce construction related air quality impacts to a level considered less than significant. All approved and proposed projects would be subject to these standard measures. Therefore less than significant construction-related impacts would occur.

Development under the proposed Specific Plan, along with other anticipated Citywide, related and/or pending projects, would result in a cumulative air quality impact. Cumulative conditions would include future development under the proposed Specific Plan, increased development under the Downtown Specific Plan and increased development along Fair Oaks Avenue. Future Downtown Specific Plan development is anticipated to include an additional 545,000 square feet of office and 1,658 residential units beyond existing conditions at buildout. Future development along Fair Oaks Avenue would include 140,000 square feet of retail uses and 770 residential units. Despite implementing many strict controls,





the San Francisco Bay Air Basin (SFAB) still fails to meet the Federal air quality standard for ozone (O₃), and the State air quality standard for O₃ and fine particulate matter (PM₁₀)¹. Because Federal and State pollution standards have not been achieved, the Basin is considered a non-attainment area for these pollutants. Development under the proposed Specific Plan, in combination with other development in the area, would have direct cumulative air quality impacts due to increased vehicle miles traveled and the ongoing nature of operational emissions and indirectly due to cumulative impacts of energy consumption. Mitigation of cumulative air quality impacts is accomplished at the regional, state and federal level through rules and regulations, as well as at the local level through each City's implementation of TDM programs and project-specific construction and operational measures. However, based on the existing volume of vehicles, traffic conditions and the amount of project related increase, development under the Specific Plan would generate a cumulatively considerable increase and would therefore be a significant and unavoidable impact.

BIOLOGICAL RESOURCES

The Moffett Park Specific Plan area is located in the City of Sunnyvale and is mostly developed with industrial, research and development, and office land uses. Future development that would be facilitated with implementation of the proposed Specific Plan would involve the development and/or redevelopment of underutilized and vacant parcels in the Specific Plan area as well as the potential intensification of existing uses (i.e. higher FARs). Most of these parcels have a low potential to support significant wildlife species or habitats due to their urban location and existing developed characteristics. Nonetheless, impacts to biological resources would be assessed and mitigated on a project-by project basis.

Most of the pending/approved and reasonably foreseeable projects in the City of Sunnyvale are located within developed and urbanized areas. Therefore, most project sites would not likely support significant wildlife habitats or species. Nonetheless, the development of the cumulative projects in the City of Sunnyvale could result in minor incremental encroachment impacts to biological resources. Site-specific mitigation measures would likely reduce most of these impacts to less than significant levels. Although the development of cumulative projects could result in potential encroachment impacts to biological resources, the future development that would be facilitated with the implementation of the proposed Specific Plan would result in incremental impacts that would be considered less than significant because of the lack of adequate habitat on the site to support significant biological resources.

CULTURAL RESOURCES

Impacts related to cultural resources are based primarily on site-specific conditions. In most cases, cultural resource impacts are limited to the project site, and do not effect adjacent properties. The majority of the properties in the Moffett Park Specific Plan area are currently developed and have been highly disturbed due to past grading and construction activities. As described in Section 3.4, Cultural Resources, archaeological resources have been discovered in the Specific Plan area. Therefore, future development projects in the Specific Plan area could result in potential impacts to such resources. Implementation of mitigation measure during construction would reduce potential impacts to cultural resources to less than significant levels. The cultural resource impacts of other pending/approved projects in the City of Sunnyvale would be assessed and mitigated on a project-by-project basis. Therefore, the project's incremental impact to cultural resources would be considered less than significant.



California Air Resources Board (CARB) Attainment Maps at: http://www.arb.ca.gov/desig/adm/sld001.htm



GEOLOGY AND SOILS

Impacts related to geology and soils are based primarily on site-specific geologic conditions. In most cases, the geology and soil impacts of a project are limited to the project site, and do not effect adjacent properties. The exception to this is in instances where geologic features (e.g., landslides and earthquake faults) might affect an extensive area, or where the development of a project might affect the geologic conditions of adjacent properties by increasing the potential for future geologic hazards, such as landslides and erosion.

Future development that would be facilitated by the implementation of the proposed Specific Plan would require site-specific and project-specific grading, engineering, and construction techniques to reduce potential geologic hazards. Impacts related to future development projects would also be assessed and mitigated on a project-project basis.

Cumulative development projects in the City of Sunnyvale would encounter geologic and seismic risks based on their individual site constraints. The development of cumulative projects would increase the development densities in the City of Sunnyvale and would expose more persons and property to potential impacts due to seismic hazards. However, on a project-by-project basis, construction in accordance with the standards of the Uniform Building Code would reduce the cumulative potential for structural damage due to seismic activity to the maximum extent feasible. In addition, potential geology and soil impacts would be mitigated on a project-by-project basis. Mitigation measures may include, but are not limited to, erosion control measures, remedial grading techniques, setbacks from on-site geologic hazards, and special foundation design, such as post-tensioned slabs, pre-saturation footings, and on-grade slabs. Therefore, the proposed Specific Plan's incremental contribution to potential cumulative geology and soil impacts would be considered less than significant.

HAZARDOUS

Future development that would be facilitated by the implementation of the proposed Specific Plan and the on-going development of individual projects in the City of Sunnyvale would require hazardous materials analysis at a minimum level equivalent to that required for CEQA clearance. All future development within the City is subject to the federal, state and local compliance regulations regarding the treatment, storage and clean-up of hazardous materials. Said compliance is required independent of the CEQA process. Compliance with federal, state and local requirements would result in a less-than-significant impact on a project-by-project basis.

HYDROLOGY AND WATER QUALITY

Future development that would be facilitated by the implementation of the proposed Specific Plan would result in alterations to drainage pattern and flow rates in the project vicinity. Impacts would be mitigated on a project-by-project basis because each project would be required to be designed to minimize both the volume and velocity of surface runoff through the proper design of subsurface drains, on-site retention, appropriate grading and construction best management practices, and landscaping programs.

Cumulative development in the project area may increase the quantities of urban pollutants (oil, gas, lead, heavy metals, solvents, etc.) that enter the local drainage system. Because all stormwater in the City of Sunnyvale ultimately enters the San Francisco Bay, the cumulative effect of new development in the City of Sunnyvale and the Bay Area may have a significant adverse effect on water quality in the Bay and





local drainage ways. However, the Clean Water Act prohibits the discharge of pollutants into waters of the United States unless the discharge complies with a National Discharge Elimination System (NPDES) permit. Certain industries and construction projects specified by the U.S. Environmental Protection Agency must obtain a NPDES permit in order to discharge stormwater runoff. The federal NPDES permit program requires that subject municipalities develop, implement, and enforce construction and post-construction controls to reduce the discharge of pollutants from storm drain systems that receive runoff from areas of new development and significant redevelopment. Within this regulatory context, developers and municipal permitting agencies are required to implement controls that reduce pollutants carried in runoff. Controls and techniques that may be used to reduce pollutants may include on-site detention, biofiltration, and storm drain filtering practices.

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) is a multijurisdictional cooperative effort among the County of Santa Clara, the Santa Clara Valley Water District, and thirteen north county cities, including the City of Sunnyvale. The program is intended to improve the water quality of South San Francisco Bay and the streams of Santa Clara County, by reducing non point source pollution in storm water runoff and other surface flows. SCVURPPP was established in response to two water quality regulations affecting the San Francisco Bay: the federal Clean Water Act and the San Francisco Bay Basin Water Quality Control Plan (RWQCB Basin Plan). The NPDES stormwater permit for the SCVURPPP was reissued by the RWQCB in February of 2001 to include performance standards for new and redevelopment projects. Provision C.3. of the NPDES permit, revised in October 2001, establishes the following performance standards and requirements for new and redevelopment projects:

- Certain sizes of new and redevelopment projects must include stormwater treatment measures.
- * Stormwater treatment measures must be properly maintained for the life of the project.
- ❖ Stormwater treatment measures must be designed to treat an optimal volume or flow of stormwater runoff from the project site. Treatment controls must be properly sized to treat the small storms that generate 80-90 percent of the stormwater pollutants.
- Significant changes in the way runoff occurs due to an increase in impervious surface created by the project must not erode creekbeds and banks downstream of the project (Hydrograph Modification Management).

To comply with the Provision C.3. requirements for new development, each participating municipality under SCVURPPP (including the City of Sunnyvale) is required to modify their development review process to incorporate new policies, procedures, and/or conditions of approval for stormwater quality. The new policies, procedures, and/or conditions must be implemented by each City by July 2003.

Each pending, approved, and future development projects in the Moffett Park area and the City of Sunnyvale would have to comply with the NPDES Permit discharge requirements, as implemented by City of Sunnyvale, for both construction and post-construction phases of the projects. Compliance with the NPDES requirements would reduce the potential for water quality impacts. Therefore, the proposed Specific Plan's incremental contribution to potential cumulative water quality impacts would be considered less than significant.





LAND USE

Implementation of the proposed Specific Plan would result in less than significant land use impacts. The land uses proposed in the Specific Plan would be compatible with the existing uses in the Specific Plan area. The types of proposed uses are also generally consistent with recent development trends in the Specific Plan area, which include the conversion of industrial and defense-industry uses to high-technology research and development facilities and office parks at FARs in excess of 35 percent.

On a project-by-project basis, the development of pending and approved projects in the City of Sunnyvale would increase land use intensities, and would result in potential land use impacts related to noise, air quality, and traffic. As cumulative land use impacts are difficult to individually assess and mitigate, mitigation is most effective through implementation of local policies and implementation strategies established in the City of Sunnyvale General Plan, Zoning Code, and Design Guidelines. Because implementation of the proposed Specific Plan would result in less-than-significant land use compatibility and policy consistency impacts, and due to the fact that each of the related projects would be required to mitigate their respective land use impacts, the proposed Specific Plan's incremental impact would not cause cumulatively significant impacts related to land use.

NOISE

Increased traffic volumes resulting from future development projects in the City of Sunnyvale are anticipated to increases vehicular noise levels along major thoroughfares in the project area. Although residences and other sensitive receptors located along these thoroughfares may be currently impacted by existing traffic noise, baseline conditions would be further impacted by cumulative traffic conditions.

In addition to traffic noise, cumulative development projects would increase the ambient noise levels within the City of Sunnyvale as a result of short-term construction activities and long-term operations. In order to mitigate adverse construction noise impacts, development proposals are reviewed for compliance with the standards set forth in the Noise Sub-Element of the Sunnyvale General Plan. Noise attenuation measures would be required for new developments, where necessary, to comply with specific interior and exterior noise levels. Potential noise impacts associated with implementation of the proposed Specific Plan would be mitigated on an individual, project-by-project basis as future sites are developed.

POPULATION AND HOUSING

The cumulative effects of the pending and approved projects in the City of Sunnyvale would increase the number of jobs in the City, causing a further imbalance in the local and regional jobs/housing ratio. In addition, the implementation of the NASA Ames Development Plan and other ongoing development projects would further contribute to the jobs-housing imbalance in the City and the region.

According to ABAG's Projections 2002, the population of the County of Santa Clara is projected to increase from 1,682,585 to 2,064,200 persons (an increase of 381,615 persons) between the years 2000 and 2025. The population growth that would be anticipated as a result of future development that would be facilitated under the direction of the Specific Plan (31,320 persons using a worst-case scenario) would be approximately 8.2 percent of the projected population increase for the County between the years 2000 and 2025 (refer to Sections 3.10, Population and Housing, and 7.0, Growth-Inducing Effects of the Proposed Project). A percentage of the employees that would work in the Moffett Park Specific Plan area would also live outside of Santa Clara County (i.e. in San Francisco, San Mateo, Alameda, etc.).





Therefore, the population growth that would be anticipated to occur in Santa Clara County would be less than 8.2 percent in reality. The amount of population growth indirectly generated as a result of future development that would be facilitated under the direction of the proposed Specific Plan would be within the range of, and consistent with, the growth assumed by ABAG (Projections 2002) for Santa Clara County in the year 2025.

The projected increase of 381,615 persons in the County between 2000 and 2025 would be expected to generate approximately 129,307 households (ABAG 2002). According to ABAG's Projections 2002, the local potential for housing growth between the years 2000 and 2025 in Santa Clara County is 102,830 units. Therefore, a substantial deficit of approximately 26,480 units is anticipated to occur in the County. If this occurs, population and housing growth would be redirected to areas outside of the County and would most likely occur where there is an abundance of developable land, such as Monterey County and nearby Central Valley communities. Residential and population growth in these areas would increase vehicle miles traveled and commute times, which would have a negative effect on air quality, traffic congestion, and overall quality of life for populations in each of the respective regions. Depending on the location of residential developments, other potentially significant impacts could occur related to agricultural resources, biological resources, public services and utilities, and water quality. Therefore, cumulative growth-inducing impacts from employment-generating development projects in Santa Clara County would be considered significant. As such, the intensity of future development that could be facilitated under the direction of the proposed Specific Plan would incrementally contribute to cumulative growth-inducing population and housing impacts on communities both within and outside of Santa Clara County. The incremental contributions to cumulative growth-inducing impacts would be considered significant.

Pending and approved projects located outside of the Moffett Park Specific Plan area may result in the displacement of existing housing units depending on their nature and location. Displacement impacts of pending and approved projects would be assessed and mitigated on a project-by-project basis. The proposed project site does not contain any housing units. Therefore, the project would not result in any incremental impacts related to the displacement of housing.

PUBLIC SERVICES

Development of proposed, approved and reasonably foreseeable projects, including projects facilitated by the Moffett Park Specific Plan, would result in increased demands upon existing public services, including police, fire, parks, and schools. The proposed project would result in potentially significant impacts related to police, fire, and schools. Section 3.11, Public Services, identifies mitigation measures to reduce potentially significant impacts to less than significant levels. Mitigation measures would be implemented on a project-by-project basis. These mitigation measures include payment of development impact fees for new fire/police equipment and facilities, the use of on-site security, and payment of development fees for school facilities. Other proposed and approved projects in the City of Sunnyvale would be required to pay similar fees based on the nature of the project and its impact on public services. As such, the proposed project's incremental contribution to public service impacts, when combined with other related projects in the City of Sunnyvale would result in less than significant cumulative effects.

TRAFFIC AND CIRCULATION

Section 3.12, Traffic and Circulation, analyzes the cumulative traffic impacts that would occur with the implementation and buildout of the proposed Specific Plan. Several roadways, freeway segments, and





intersections in the City of Sunnyvale would be impacted despite the implementation of mitigation measures (refer to Section 3.12, Traffic and Circulation, for a comprehensive discussion of traffic impacts). Therefore, future development that would be facilitated as a result of the proposed Specific Plan, in combination with existing, proposed, and reasonably foreseeable projects would be considered significant and unavoidable.

UTILITIES

Future development that would be facilitated by the implementation of the proposed Moffett Park Specific Plan would result in less-than-significant impacts related to water, electricity, natural gas, telephone, and cable. The proposed project would potentially have significant sewer system and long-term solid waste impacts. However, future projects in the Specific Plan area would require the construction of new sewer facilities and the implementation of a Solid Waste/Recycling Management Plan to mitigate potentially significant impacts. With mitigation, these potentially significant impacts would be reduced to less than significant levels.

On a project-by-project basis, development of the proposed and approved projects in the area may result in increased demands upon existing utilities. In general, individual impacts of development projects are assessed and mitigated on a project-by-project basis. However, the pending and approved projects in the City of Sunnyvale, including the future implementation of the Moffett Park Specific Plan and the NASA Ames Development Plan, could result in cumulatively significant impacts on existing utility system as described below:

Water:

Water supplies to serve the pending and approved projects in the City of Sunnyvale, including the future implementation of the Moffett Park Specific Plan and the NASA Ames Development Plan, as well as other existing developments in the region during drought years cannot be ensured (NASA Ames Development Plan Draft EIS). Therefore, potentially significant water supply impacts could occur in the region during a period of severe drought.

Sewer

The Sunnyvale Water Pollution Control Plant would serve the pending and approved projects in the City of Sunnyvale. The Water Pollution Control Plant currently has a capacity to treat 29.5 million gallons of wastewater per day. The treatment plant is currently operating at approximately 56 percent of its full capacity, treating approximately 16.5 million gallons per day. The facility is expected to meet the City's sewage treatment needs for the next 30 to 50 years (Sunnyvale Futures Study, 1993). Therefore, the existing treatment plant would have the capacity to serve the pending and approved projects in the City of Sunnyvale.

The development of pending and approved projects in the City of Sunnyvale may exceed the capacity of the sewer mains that serve the project site. For example, the NASA Ames Development Plan would result in potentially significant impacts to the sewer mains that flow from NASA Ames to the Sunnyvale Water Pollution Control Plant. These sewer mains would have to be upgraded as mitigation to adequately serve existing development and the NASA AMES Development Plan. These sewer mains would also serve the Specific Plan area. Therefore, the NASA Ames Development and future development that would be facilitated by the implementation of the proposed Specific Plan may result in a potentially





cumulative impact to the sewer mains. The individual impacts future development would be assessed and mitigated on a project-by-project basis. Therefore, cumulative impacts to the City of Sunnyvale sewer system would be considered less than significant with the implementation of project mitigation measures.

Energy

As the state continues to grow, demand continues to swell for energy required to operate and maintain the electricity needs of homes, businesses, and local governments. As a result, California has recently been struggling with a serious recurring energy crisis. During the early part of 2001, Northern California experienced back-to-back rounds of rolling blackouts caused by insufficient electricity to serve existing demand. However, electricity conservation, which a year ago showed little promise of success, not only flourished during the crisis, but has continued at a near double-digit pace during 2001 and into early 2002 (Los Angeles Times, State May Be Re-Energized, but Powerful Questions Remain, January 20, 2002). It would appear then, that while the California energy market remains volatile and susceptible to service shortages, that the energy crisis has been abated in the short term as future supplies have become contracted and secured. However, the cumulative effects of pending and approved projects in the region would further impact existing electrical utility supplies and may contribute to future rolling blackouts in the event of recurring statewide energy shortages. These impacts would, therefore, be considered potentially significant. To reduce cumulative energy impacts, additional electrical power plant facilities need to be constructed. In order to reduce energy demands generated by future projects, the projects would be required to adhere to energy conservation measures under Title 24 of the California Administrative Code. The individual impacts of other pending and approved projects would be assessed and mitigated on a project-by-project basis.

4.3 Conclusion

The proposed project's incremental impacts would potentially contribute to significant air quality, population and housing, traffic, energy, and water supply impacts when combined with the cumulative impacts of pending, approved, and reasonably foreseeable development projects in the City of Sunnyvale.





5.0 SIGNIFICANT ENVIRONMENTAL IMPACTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

5.1 State CEQA Guidelines Requirements

Section 15126(b) of the State CEQA Guidelines requires an EIR to "describe any significant impacts, including those that can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described."

5.2 Significant Unavoidable Impacts of the Proposed Project

Section 3.0 of this EIR provides a description of the potential environmental impacts of the proposed CEQA Project and recommends mitigation measures to reduce impacts to a less than significant level, where possible. Most of the potentially significant environmental impacts can be reduced to less than significant impacts with the implementation of mitigation measures. However, the implementation of the proposed Moffett Park Specific Plan would result in significant and unavoidable traffic and population and housing impacts as described in the sections below.

5.3 Project Impacts

The following impacts would remain significant and unavoidable, that is, identified mitigation measures would not, or may not be sufficient to reduce the impacts of the project to a less than significant level:

AIR QUALITY

IMPACT 3.2-C

Operational Air Quality Impacts: Future area source and vehicular emissions under the proposed Moffett Park Specific Plan may result in operational air quality impacts. (Significant and Unavoidable Impact).

Operational air quality impacts are generated by area sources and mobile sources. Area source emissions are generated from such activities as heating, cooling, offsite and on-site power generation, use of aerosol chemicals and propellants and gases. With respect to the proposed Specific Plan, the greatest potential for air quality impacts would result from mobile source emissions (vehicle traffic). Mobile source emissions include carbon dioxide, reactive organic gases, nitrogen dioxide and particulates. Future development in the Moffett Park area under the existing City of Sunnyvale General Plan would include approximately 18,304,761 square feet of buildings and 138,324 average daily trips (ADT). This would represent a 5,850,008 square foot (46 percent) increase of building space and 62,833 (83 percent) increase in ADT. As shown below in Table 3.2-7, General Plan Buildout Operational Air Emissions, the Moffett Park area would generate 946.4 lbs/day of VOC (ROG), 2,619.2 lbs/day of NOX, 9,710.6 lbs/day of CO and 1,294.4 lbs/day of PM10. This represents a decrease of 921.1 lbs/day of VOC (ROG) and 5,456.8 lbs/day of CO and an increase of 322.7 lbs/day of NOX and 563.6 lbs/day of PM10 (the decrease is due to projected improvements in vehicle exhaust emission controls between now and project Buildout).

Future development in the Moffett Park area under the proposed Moffett Park Specific Plan would include approximately 24,410,880 square feet of buildings and 163,324 average daily trips (ADT). This





would represent a 11,956,127 square foot (95 percent) increase of building space and 88,415 (117 percent) increase in ADT over existing conditions. As shown below in Table 3.2-8, Specific Plan Operational Air Emissions, the proposed Specific Plan would generate 1,144.2 lbs/day of VOC (ROG), 3,100.0 lbs/day of NOX, 11,493.8 lbs/day of CO and 1,532.2 lbs/day of PM10. This represents a decrease of 713.3 lbs/day of VOC (ROG) and 3,673.6 lbs/day of CO and an increase of 803.5 lbs/day of NOX and 801.4 lbs/day of PM10 as compared to existing conditions. Comparison between future development under the City General Plan and proposed Specific Plan conditions indicates that the proposed Specific Plan would generate greater emissions than generated under the General Plan.

Table 3.2-7 General Plan Buildout Operational Air Emissions				
	VOC (ROG)	NO _x	co	PM_{10}
Unmitigated Area Source Emissions (lbs/day)	0.1	0.8	0.6	0.0
Unmitigated Mobile Source Emissions (lbs/day)	946.3	2,618.4	9,710.0	1,294.4
Total Unmitigated Emissions (lbs/day)	946.4	2,619.2	9,710.6	1,294.4
BAAQMD Threshold (lbs/day)	80	80	550*	80
Are Thresholds Exceeded?	Yes	Yes	Yes	Yes

Source: URBEMIS 7G Air Emissions Model and BAAQMD CEQA Guidelines

^{*} Or cause roadway segment operating at LOS D, E or F to decline to LOS D, E, F or 3, or cause project traffic increase on local roadways to 10% or more (exempt if project vehicle contribution is less than 100 vehicles per hour).

Table 3.2-8 Specific Plan Operational Air Emissions					
	VOC (ROG)	NO_x	co	PM_{10}	
Unmitigated Area Source Emissions (lbs/day)	0.1	0.8	0.6	0.0	
Unmitigated Mobile Source Emissions (lbs/day)	1,144.1	3,099.2	11,493.2	1,532.2	
Total Unmitigated Emissions (lbs/day)	1,144.2	3,100.0	11,493.8	1,532.2	
BAAQMD Threshold (lbs/day)	80	80	550*	80	
Are Thresholds Exceeded?	Yes	Yes	Yes	Yes	

Source: URBEMIS 7G Air Emissions Model and BAAQMD CEQA Guidelines

Implementations of the appropriate TCM under the TDM would serve to reduce Specific Plan related operational emissions. However, considering the fact that it is not possible to ascertain the character and scope of future projects within Moffett Park and the fact that the Specific Plan represents greater emissions output over that of the General Plan, operational emissions with respect to the proposed Specific Plan would generate a significant and unavoidable impact.

Mitigation 3.2-C1

Where possible, the proposed Moffett Park Specific Plan shall identify appropriate pedestrian "walkthrough" locations to provide direct, safe, attractive pedestrian access from project to transit stops and adjacent development (Significant and Unavoidable Impact).



^{*} Or cause roadway segment operating at LOS D, E or F to decline to LOS D, E, F or 3, or cause project traffic increase on local roadways to 10% or more (exempt if project vehicle contribution is less than 100 vehicles per hour).



Mitigation 3.2-C2

As a condition of project approval for future development under the Moffett Park Specific Plan, pedestrian access ways allowing travel within and through parcels shall be implemented, as appropriate, on a per project basis at the discretion of the Community Development Director (Significant and Unavoidable Impact).

POPULATION AND HOUSING

IMPACT 3.10-A

Regional Population and Housing Impacts: The proposed Specific Plan would not allow for the future construction of residential units in the Specific Plan Area. However, the intensity of future development that could be facilitated under the direction of the proposed Specific Plan would generate a substantial number of jobs and would indirectly induce population and housing growth throughout the region. (Significant and Unavoidable Impact)

Population and housing growth is directly affected by the construction of new housing units. The proposed Specific Plan does not include residential land uses and would not directly increase population growth through the construction of new housing. However, the jobs generated by future development projects that would be allowed under the direction of the proposed Specific Plan would be anticipated to increase the demand for housing in the City of Sunnyvale and the Silicon Valley region.

Implementation of the proposed Moffett Park Specific Plan would involve the intensification of manufacturing, office, research and development (R&D), and related business-serving land uses in the Moffett Park area. The proposed Specific Plan would allow such uses to be developed at higher Floor Area Ratios (FARs) than the current FARs established in the existing City of Sunnyvale General Plan and Zoning Code. By increasing the FARs, the development potential within the Moffett Park Specific Plan Area would increase from approximately 18.3 million square-feet of building floor space to approximately 24.3 million square-feet of building floor space. This would increase the development potential by approximately 33.3 percent beyond the conditions that have been assumed under existing General Plan Buildout. Table 5-1 compares the future building potential within the Moffett Park Specific Plan Area with the existing FARs allowed in the current City of Sunnyvale General Plan and Zoning Code and the future development potential that would be facilitated by implementation of the proposed Specific Plan and associated FARs.

As noted in Table 5-1, below, there currently is approximately 15.6 million square-feet of building floor space developed in the Moffett Park Specific Plan Area. Under existing City of Sunnyvale General Plan and Zoning polices and standards, the Specific Plan Area could accommodate an additional 2.7 million square-feet of building floor space (or a total of 18.3 million square-feet of building floor space). The proposed Specific Plan would allow for a total of approximately 24.3 million square feet of building floor space. Therefore, approximately 8.8 million additional square-feet of building floor space could be constructed in the Moffett Park area if the Specific Plan is adopted. This would be approximately 6.1 million more square-feet of building floor space than what is allowed under the existing General Plan and Zoning Code.





Table 5-1 Future Building Potential of the Moffett Park Specific Plan area with existing General Plan/Zoning FARS and proposed Specific Plan FARS					
Existing amount of Developed Building Floor Space	Development Potential of Specific Plan Area with existing General Plan and Zoning FARs		I Development Potential of Specific Plan Area with		
	Total	Additional	Total	Additional	Increase in Total
	Amount of	Amount of	Amount of	Amount of	Amount of
	Building Floor	Building Floor	Building Floor	Building Floor	Building Floor
	Space Allowed	Space that could	Space Allowed	Space that	Space beyond
	(General Plan Buildout	be Developed	(Specific Plan Buildout	could be Developed	Existing General Plan Buildout
	Conditions)		Conditions)	Developed	Conditions
15.6 Million Sq.	18.3 Million Sq.	2.7 Million	24.3 Million	8.8 Million	6.1 Million
Ft.	Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
Source: RBF Consulting, August 2002					

On average, 340 square-feet of industrial/office space generates approximately 1 job. Therefore, the 8.8 million square-feet of additional building space could generate approximately 25,900 additional jobs for the Specific Plan Area. Buildout of the Moffett Park area under the existing General Plan would generate approximately 7,907 jobs. Therefore, the potential employment generated by buildout of the proposed Specific Plan would be substantially greater (approximately 18,000 more jobs) than the employment generated by the buildout of the Moffett Park area under the existing General Plan. Employment generated as a result of the proposed Specific Plan would occur in phases over a 25-year buildout period. Employment growth of the area would generally follow the construction and operation of future industrial/office development projects.

Many of the businesses that would locate in the Moffett Park Specific Plan Area would be considered "basic sector" businesses. The basic sector is made up of businesses that export their goods and services to markets outside of the local economy. The basic sector also supports the "non-basic sector", which is made up of businesses that sell their goods and services almost entirely to the local market. Non-basic businesses include grocery stores, drug stores, restaurants, local retail stores, printing and publishing companies, dry cleaning services, and other local service-oriented businesses. In addition to the 25,800 additional jobs that could be created from future development projects in the Specific Plan Area, future development projects would also indirectly generate economic development by generating or supporting jobs in the non-basic sector. These non-basic sector jobs could be located both within and outside of the Specific Plan Area.

In addition, the design and construction of future development projects that could occur under the guidance and framework established by implementation of the proposed Specific Plan would generate employment opportunities for architects, landscape architects, planners, engineers, surveyors, construction workers, heavy equipment operators, building inspectors, and other several jobs related to construction activities. Construction employment would fluctuate depending on the market and demand for the construction of new building space.



The Association of Bay Area Governments (ABAG) calculates and publishes population and employment projections for the San Francisco Bay Area. The projections are used to allocate federal and state funds for capitol projects, to determine city and county housing needs, manage traffic congestion, estimate future sources of air pollution, and to assist local and regional government agencies in land use and policy planning. According to ABAG's Projections 2002, employment in Santa Clara County is projected to increase by 303,500 jobs between the years 2000 and 2025. Approximately 23.9 percent of that increase will be in the manufacturing sector and 36.8 percent will be in the service sector (ABAG). Employment in the City of Sunnyvale is projected to increase by approximately 36,950 jobs between the years 2000 and 2025. The majority of the job growth is projected to occur in the manufacturing/wholesale industry and the service industry by adding 17,950 and 13,750 jobs, respectively (ABAG).

To analyze the employment growth that could occur as a result of future intensification and density of development under the direction of the proposed Specific Plan, the number of jobs anticipated from future buildout of the Specific Plan is compared to the number of jobs anticipated from the future buildout of the area under the existing General Plan and Zoning policies and standards. As noted above, the potential employment generated by buildout of the proposed Specific Plan would be substantially greater (approximately 18,000 more jobs) than the employment generated by the buildout of the Moffett Park area under the existing General Plan. The addition 18,000 jobs that would be anticipated would be within the range and consistent with the growth projected by ABAG for both Santa Clara County (303,500 jobs) and the City of Sunnyvale (36,950 jobs). The level and pace of growth that would be expected to occur would also be consistent with the types of land use transitions and trends currently being approved and allowed within the Moffett Park Specific Plan Area. Therefore, the employment generated by future development under the direction of the proposed Specific Plan would not be considered substantial when compared to regional and local projections for employment growth between the years 2000 and 2025.

A number of factors would determine how future job growth within the Moffett Park Specific Plan Area would affect the demand for housing in the region. These factors include, but are not limited to the following:

- ❖ The number of future employees that would relocate to the region: It is assumed that employees that relocate to the region would increase the demand for new housing in the region.
- ❖ The number of future employees who currently live and work in the region: It is assumed that these employees would not increase the demand for new housing because they would already be living in the region.
- ❖ The future economic prosperity and unemployment rate of the region.

In order to assess the proposed Specific Plan's impact on the demand for housing in the region, a *worst-case* scenario approach is utilized. The worst-case scenario assumes that all of the jobs generated by future development projects under the direction of the proposed Specific Plan would be filled by employees that relocate to the region. In reality, persons who already live in the City of Sunnyvale and within the Silicon Valley Region would fill many of the generated jobs. Nonetheless, to determine the worst-case population growth that would be expected to occur in the region, the number of employees that would be generated by future development projects under the direction of the proposed Specific Plan is multiplied by the labor force participation rate (i.e. the number of residents per employee). This calculation is done in order to take into account the number of persons that would be supported by the employee, but that do not work (i.e. children, stay at home parents, college students living at home, etc).





Based on calculations from ABAG's Projections 2002, the County of Santa Clara would have a labor force participation rate of 1.74 residents per 1 employee in the year 2025. As previously noted, implementation and buildout of the proposed Specific Plan has the potential to generate approximately 18,000 more jobs than the implementation and buildout of the existing General Plan. Based on the labor force participation rate of 1.74, the 18,000 additional jobs would result in a *regional* population increase of approximately 31,320 persons (1.74 residents/employee x 18,000 employees = 31,320 residents).

It is assumed that the majority of the anticipated population increase (as driven by anticipated employment) would prefer to live within the Silicon Valley region, near the City of Sunnyvale. Given the complex characteristics and relationships between the location of employment and where people chose to live, it would be difficult to specifically determine where the employees of future businesses within the Moffett Park Specific Plan Area would chose to live within the greater Silicon Valley Region. Factors that influence where employee households chose to live include, but are not limited to the following:

- ❖ Whether the employment is full or part-time.
- The salary of employment.
- The location of employment for primary and secondary wage earners within the same household.
- ❖ The availability of affordable housing within a reasonable commute distance to the location of employment.
- ❖ An individual's tolerance to the amount of time spent commuting to and from work.
- ❖ The location of high-quality schools in the region.
- The overall quality of life of the community as perceived by individuals and families.

Based on the complex factors noted above, the process of determining the specific location of population and housing growth would be speculative and based on severeal assumptions that may or may not be true in the future. Therefore, the population and housing growth that would indirectly occur as a result of future development projects under the direction of the Specific Plan was not determined for specific cities and communities within the region. However, a regional analysis is addressed below with the intent of estimating potential impacts to Santa Clara County.

According to ABAG's Projections 2002, the population of the County of Santa Clara is projected to increase from 1,682,585 to 2,064,200 persons (an increase of 381,615 persons) between the years 2000 and 2025. The population growth that would be anticipated as a result of future development that would be facilitated under the direction of the Specific Plan (31,320 persons using a worst-case scenario) would be approximately 8.2 percent of the projected population increase for the County between the years 2000 and 2025. A percentage of the employees that would work in the Moffett Park Specific Plan Area would also live outside of Santa Clara County (i.e. in San Francisco, San Mateo, Alameda, etc.). Therefore, the population growth that would be anticipated to occur in Santa Clara County would be less than 8.2 percent in reality. The amount of population growth indirectly generated as a result of future development that would be facilitated under the direction of the proposed Specific Plan would be within the range of, and consistent with, the growth assumed by ABAG (Projections 2002) for Santa Clara County in the year 2025.





The projected increase of 381,615 persons in the County between 2000 and 2025 would be expected to generate approximately 129,307 households (ABAG 2002). According to ABAG's Projections 2002, the local potential for housing growth between the years 2000 and 2025 in Santa Clara County is 102,830 units. Therefore, a substantial deficit of approximately 26,480 units is anticipated to occur in the County. If this occurs, population and housing growth would be redirected to areas outside of the County and would most likely occur where there is an abundance of developable land, such as Monterey County and nearby Central Valley communities. Residential and population growth in these areas would increase vehicle miles traveled and commute times, which would have a negative effect on air quality, traffic congestion, and overall quality of life for populations in each of the respective regions. Depending on the location of residential developments, other potentially significant impacts could occur related to agricultural resources, biological resources, public services and utilities, and water quality. Therefore, cumulative growth-inducing impacts from employment-generating development projects in Santa Clara County would be considered significant. As such, the intensity of future development that could be facilitated under the direction of the proposed Specific Plan would incrementally contribute to cumulative growth-inducing population and housing impacts on communities both within and outside of Santa Clara County. The incremental contributions to cumulative growth-inducing impacts would be considered significant.

Mitigation 3.10-A

Population and Housing Impacts: The property owners/developers of future development projects within the Moffett Park Specific Plan Area shall contribute to the City of Sunnyvale's "Housing Mitigation Fund" as deemed applicable and appropriate by the City of Sunnyvale. The City shall in turn utilize and expend the monies collected in the Housing Mitigation Fund to reduce the City's housing deficiency in relation to the number of jobs located in the City. (Significant and Unavoidable Impact).

To reduce potentially significant housing impacts, the City of Sunnyvale shall utilize its "Housing Mitigation Fund". The Housing Mitigation Fund is designed to address the City's housing deficiency in relation to the number of jobs. Fees are collected from developments that exceed established Floor Area Ratios. Funds can be used for rehabilitation, acquisition, new construction, and predevelopment costs for affordable housing development. Developers of future development projects in the Moffett Park Specific Plan Area would be required to pay into the City's Housing Mitigation Fund. The payment of fees would help to reduce potentially significant impacts in the City of Sunnyvale. However, the City of Sunnyvale does not have a legal mechanism that requires developers to mitigate housing and growth-inducing impacts that would occur outside of the City's boundaries but within the region. Therefore, cumulative growth-inducing impacts would be considered significant and unavoidable.

TRAFFIC AND CIRCULATION

IMPACT 3.12-A

Freeway Operations: Implementation and subsequent buildout of the proposed Specific Plan would not impact any additional study freeway segments beyond those impacted under General Plan 2020 Conditions. However, the implementation and subsequent buildout of the proposed Specific Plan would increase the severeity and level of significance of impacts along severeal freeway segments that would be significantly impacted under General Plan 2020 conditions (Significant and Unavoidable Impact).





Freeway segment operations under 2020 Preferred Alternative Conditions (proposed project) were evaluated using the same procedures as the 2020 General Plan Conditions, identified above. The density and level of service were calculated assuming existing speeds.

Freeway segment levels of service are summarized in Table 3.12-12. As indicated in Table 3.12-12, implementation of the Specific Plan would not impact any additional study freeway segments compared to the General Plan 2020 Conditions. However, the implementation and subsequent buildout of the proposed Specific Plan would increase the severeity and level of significance of impacts along severeal freeway segments that would be significantly impacted under General Plan 2020 conditions. The following freeway segments would be impacted according to the CMP guidelines under 2020 Preferred Alternative Conditions:

- ❖ US-101 northbound south of Montague Expressway in the AM peak hour
- ❖ US-101 northbound between Route 237 and Ellis Street in the both the AM and PM peak hours
- ❖ US-101 northbound between Ellis Street and Moffett Boulevard in both the AM and PM peak hours
- US-101 northbound between Moffett Boulevard and Route 85 in the AM peak hour
- ❖ US-101 northbound north of Shoreline Boulevard in the PM peak hour
- ❖ US-101 southbound between Lawrence Expressway and Bowers Avenue in the AM peak hour
- ❖ US-101 southbound between Bowers Avenue and Montague Expressway in the PM peak hour
- ❖ US-101 southbound south of Montague Expressway in the PM peak hour
- Route 237 eastbound between Route 85 and Central Expressway in the AM peak hour
- Route 237 eastbound between US-101 and Mathilda Avenue in the AM peak hour
- Route 237 eastbound between Mathilda Avenue and Fair Oaks Avenue in the AM peak hour
- * Route 237 westbound between Central Expressway and Route 85 in the PM peak hour
- * Route 237 westbound between Route 85 and El Camino Real in the PM peak hour
- Route 85 northbound south of Interstate 280 in the AM peak hour
- Route 85 northbound between Interstate 280 and Homestead Road in the AM peak hour
- * Route 85 northbound between Homestead Road and Fremont Avenue in the AM peak hour
- * Route 85 northbound between Fremont Avenue and El Camino Real in the AM peak hour
- * Route 85 northbound between Central Expressway and US-101 in the AM peak hour
- Route 85 southbound between Central Expressway and Route 237 in the PM peak hour
- * Route 85 southbound between Route 237 and El Camino Real in the PM peak hour
- Route 85 southbound between El Camino Real and Fremont Avenue in the PM peak hour
- Noute 85 southbound between Homestead Road and Interstate 280 in the PM peak hour
- Route 85 southbound south of Interstate 280 in the PM peak hour
- ❖ Interstate 280 southbound between Route 85 and De Anza Boulevard in the PM peak hour
- ❖ Interstate 280 southbound between De Anza Boulevard and Wolfe Road in the PM peak hour
- ❖ Interstate 280 southbound south of Wolfe Road in the PM peak hour
- ❖ Interstate 280 northbound south of Wolfe Road in the AM peak hour

Mitigation 3.12-A

As with implementation of the General Plan 2020, the following freeway segments would need to be widened to provide one additional travel lane to mitigate impacts under the Preferred Alternative (Moffet Park Specific Plan) Conditions:





- ❖ US-101 northbound south of Montague Expressway, from Route 237 to Route 85, and north of Shoreline Boulevard
- ❖ US-101 southbound from Lawrence Expressway to south of Montague Expressway
- ❖ Route 237 eastbound from Route 85 to Central Expressway and from US-101 to Fair Oaks Avenue
- * Route 237 westbound from Central Expressway to El Camino Real
- ❖ Route 85 northbound from south of I-280 to El Camino Real and from Central Expressway to US-101
- * Route 85 southbound from Central Expressway to south of I-280
- ❖ I-280 southbound from Route 85 to south of Wolfe Road
- ❖ I-280 northbound from north of Wolfe Road

Mitigation of project impacts on freeway segments under General Plan buildout (2020) and Specific Plan conditions would be prohibitively expensive and not reasonably feasible to implement due to significant environmental impact and right-of-way acquisitions. Therefore, significant and unavoidable impacts to freeway segments would occur as a result of the proposed Specific Plan

Widening of these freeway segments would result in significant environmental and right-of-way impacts and are therefore not feasible. The magnitude of the improvements necessary along the freeway segments identified would be so large that no single project could reasonably bear the burden of costs to fund the improvements. However, widening of Route 237 from Route 85 to Mathilda Avenue to provide HOV lanes is included in the current Valley Transportation Plan (VTP) 2020. In addition, Valley Transportation Agency (VTA) is initiating a study for the Route 85/Route 280 interchange.

The City of Sunnyvale is participating in a VTA-sponsored study of the Route 237 Corridor/Mini-Triangle Area. The study will review/analyze Route 237 corridor and other potential corridor improvements including interchanges with US-101 and Route 85. As it does with all Citywide development, the City of Sunnyvale will also collect \$1 per square foot of regional impact fee from all future developments in the Moffett Park area. The collected impact fee will be contributed toward improvements of regional roadway facilities. Given that there are no current local, regional, state, or federal programs in place or proposed, nor any funding that has been identified, committed or allocated to implement the specific required improvements (as identified in Mitigation Measure 3.12-A), the project's incremental impact above General Plan 2020 conditions would remain significant and unavoidable based on the thresholds and criteria identified above.

IMPACT 3.12-B

Isolated Intersections: Implementation and subsequent buildout of the proposed Specific Plan would not impact any additional isolated study intersections beyond those impacted under General Plan 2020 Conditions. However, the implementation and subsequent buildout of the proposed Specific Plan would increase the severeity and level of significance of impacts at severeal intersections that would be significantly impacted under General Plan 2020 conditions (Potentially Significant Impact If Not Mitigated).





Exhibits 3.12-5A and 3.12-5B show the peak hour intersection volumes and lane geometry under the 2020 Preferred Alternative Conditions based on the land use and model run presented earlier.

Level of Service Analysis

Traffic volumes at the study intersections under the 2020 Preferred Alternatives Conditions are shown in Exhibits 3.12-5A and 3.12-5B. The levels of service at the study intersections are summarized in Table 3.12-13. The calculations are included in Appendix B of the Moffett Park Specific Plan Transportation Impact Analysis Study, located in Appendix F of this document (under separate cover).

Traffic under the Preferred Alternative Conditions would significantly impact the following intersections compared to the Existing Conditions using the criteria described above:

- ❖ Caribbean Drive & Moffett Park Drive in the PM peak hour
- ❖ Fair Oaks Avenue & Arques Avenue in the PM peak hour
- ❖ Fair Oaks Avenue & Tasman Drive in the AM peak hour
- ❖ Lawrence Expressway & Arques Avenue during both peak hours (CMP Intersection)
- ❖ Lawrence Expressway & Homestead Road during both peak hours (CMP Intersection)
- ❖ Lawrence Expressway & Kifer Road during both peak hours
- ❖ Lawrence Expressway & Lakehaven Drive in the PM peak hour
- ❖ Lawrence Expressway & Oakmead Parkway in the AM peak hour
- Lawrence Expressway & Reed Avenue/Monroe Street during both peak hours (CMP Intersection)
- ❖ Lawrence Expressway & Tasman Drive during both peak hours
- ❖ Mary Avenue & Central Expressway during both peak hours
- ❖ Mary Avenue & El Camino Real in the PM peak hour
- ❖ Mathilda Avenue & El Camino Real during both peak hours
- Sunnyvale-Saratoga Road & Remington Drive in the AM peak hour
- ❖ Wolfe Road & Kifer Road during both peak hours
- ❖ Wolfe Road & Old San Francisco Road/Reed Avenue in the AM peak hour
- ❖ Central Expressway & Ferguson Drive in the PM peak hour (CMP Intersection)
- ❖ Central Expressway & Whisman Road during both peak hours (CMP Intersection)
- Central Expressway & Moffett Boulevard during both peak hours (CMP Intersection)
- ❖ Central Expressway & Shoreline Boulevard (East) in the PM peak hour (CMP Intersection)
- Central Expressway & Rengstorff Avenue in the PM peak hour (CMP Intersection)
- ❖ Central Expressway & Oakmead Parkway during both peak hours (CMP Intersection)
- ❖ Central Expressway & Bowers Avenue during both peak hours (CMP Intersection)

When compared to the General Plan conditions, the Preferred Alternative would impact only three of the above intersections at Carribbean Drive & Moffett Park Drive, Fair Oaks Avenue & Tasman Drive, and Lawrence Expressway & Oakmead Parkway. Since traffic under the Preferred Alternative Conditions would significantly impact the above intersections, mitigation measures would be required.

Mitigation 3.12-B

The City of Sunnyvale shall be responsible for the implementation of all intersection improvements identified in Table 3.12-14 commensurate with and pursuant to the City of Sunnyvale Transportation Strategic Program of the General Plan. Future property owners/developers within Moffett Park shall be required to pay the City of Sunnyvale all applicable transportation fees in an





amount determined by the City Council Resolution in effect at the time of issuance of the building permit.

Most improvements for the local intersections in Sunnyvale would be feasible and have been identified in the City's Transportation Strategic Program (TSP) for the General Plan (see also "Level of Service After Mitigation" on Page 3.12-51 of this section).

Expressway Improvements

Improvements to the intersections along Lawrence Expressway would require providing additional turning lanes, through lanes by removing HOV lanes, or grade separations. Santa Clara County Roads and Airports Department is currently conducting the *Comprehensive County Expressway Planning Study* that will recommend and prioritize capacity improvements along all county expressways including Lawrence and Central Expressways. Sunnyvale citywide model was used to derive traffic projections used in this TIA while VTA's CMP model was used for the County Expressway Study. The following are some of the main factors that result in different traffic projections and LOS results for the expressway intersections:

- ❖ Land Uses Both studies have similar General Plan land use assumptions in Sunnyvale. However, the Expressway Study has shifted two to three times more jobs to the North Bayshore area based on the Mountain View General Plan. It has also reduced employment in Cupertino by approximately 10,000 jobs. These land use differences shift traffic off of Central and Lawrence and onto Hwy 101 in the Expressway Study.
- ❖ Trip Generation Rates The CMP model used by the Expressway Study uses MTC's trip generation rates; the Sunnyvale General Plan model generally uses ITE trip generation rates. ITE has higher trip generation rates than MTC.
- ❖ Peak Spreading The CMP model spreads the peak hour traffic demand over a 3-hour peak period to reflect capacity constraints in the peak hour. The Sunnyvale General Plan model projects peak hour traffic demand without being constrained by the available roadway capacities. This is a key methodology difference between the City model, which is intended to comprehensively identify local roadway impacts, and the CMP model, which is intended to prioritize deficiencies to the regional roadway system based on the region wide comparison of deficiencies. With the CMP model, when freeway link volume-to-capacity (v/c) ratios exceed 1.25 and expressway link v/c exceeds 1.15, the excessive traffic demand is assumed to shift outside the peak hour resulting in an extension of the peak period. Sunnyvale's model, therefore, will show higher traffic projections for the peak period rather than extending the peak to accommodate increased demand.
- ❖ Traffic Analysis Zones and Roadway Network Most of the Traffic Analysis Zones (TAZs) in the CMP model contain more than one of the Sunnyvale model TAZs. The smaller TAZ boundaries allow the Sunnyvale model to include more local streets and intersections than the CMP model. This would yield more realistic and reasonable turning movement projections for local intersections, but creates a level of detail unnecessary, complex and difficult to calibrate for the CMP's countywide model.





The Sunnyvale General Plan model has been approved by VTA and is in conformance with the CMP model. The CMP model is appropriate for planning improvement needs at local roadways and intersections. However, the CMP model is generally more appropriate for freeways and expressways, where peak spreading is necessary to reflect realistic conditions on these major transportation facilities and MTC trip generation rates are needed for consistency in the region. A further consideration for the Expressway Study is the necessity for consistency in the modeling methodology for all eight (8) expressways to facilitate prioritization among the expressways and within VTP 2020 project lists.

Since the County has jurisdiction over planning and programming improvements along expressways. All improvements identified in Table 3.12-14, including Lawrence Expressway intersections and the improvements required to mitigate Central Expressway intersections outside of Sunnyvale, should be refined further based on the County's recommendations. The City of Sunnyvale will contribute its fair share toward the recommended expressway improvements as part of its TSP for General Plan buildout.

Level of Service (LOS) after Mitigation

The resulting levels of service for the impacted intersections after the proposed mitigation are shown in Table 3.12-15. According to Table 3.12-17, most intersections would operate at acceptable LOS after the implementation of mitigation measures. However, there are no feasible mitigation measures to reduce the LOS impacts at the following intersections:

- Central Expressway and Oakmead Parkway (City of Santa Clara)
- Central Expressway and Bowers Avenue (City of Santa Clara)

Therefore, significant and unavoidable impacts would occur as a result of implementation and buildout of the proposed Specific Plan.

IMPACT 3.12-C

Pursuant to the criteria for the coordinated signal system analysis, the Mathilda Avenue corridor would be impacted in the AM Peak hour with implementation of the proposed project. During the AM peak hour, the overall signal system would worsen from LOS B under existing Conditions to LOS E under the Preferred Alternative Conditions. In the PM peak hour, the overall corridor level of service would worsen from LOS B to LOS D (Potentially Significant Impact).

Tables 3.12-16 and 3.12-17 show the summary of Synchro and SimTraffic analysis results for the 2020 Preferred Alternative Conditions. Two of the individual intersections in the Mathilda Avenue corridor would operate at LOS F: at Moffett Park Drive during both peak hours and at Route 237 Westbound Ramps in the AM peak hour.

According to the criteria for the overall signal system corridor described above, the Mathilda Avenue corridor in the AM peak hour would be impacted under Preferred Alternative Conditions. During the AM peak hour, the overall signal system corridor would worsen from LOS B under Existing Conditions to LOS E under Preferred Alternative Conditions. In the PM peak hour, the overall corridor level of service would worsen from LOS B to LOS D.





When compared to the Existing Conditions, only two new movements in the Mathilda Avenue corridor would have potential queuing problems based on the stop/vehicle and maximum queue/storage length ratios:

- ❖ Mathilda Avenue & Route 237 Westbound Ramps northbound left-turn movement in the AM peak hour
- Mathilda Avenue & Route 237 Eastbound Ramps southbound left-turn movement in the PM peak hour

However, as was the case under General Plan Conditions, only the westbound through/right movement at the intersection of Mathilda Avenue & Moffett Park would be impacted based on an excess queue of greater than 50 feet. Nonetheless, mitigation measures would be required

<u>Mitigation 3.12-C</u> Refer to Mitigation 3.12-B. (Significant and Unavoidable Impact)

Mathilda Avenue Corridor Improvements

The average overall system level of service for Mathilda Avenue Corridor between Ross Drive and Moffett Park Drive during the AM peak hour would be LOS E. The City's TSP has identified Mary Avenue Extension to relieve congestion and delays along this section of Mathilda Avenue. As mentioned earlier, the City of Sunnyvale and VTA are co-sponsoring the Route 237 Corridor/Mini-Triangle Study. This study will refine the planned Mary Avenue Extension and could potentially identify other improvement alternatives to further mitigate this arterial street corridor. However, since those improvements are not known to date, the Mathilda Avenue corridor impacts would be considered significant and unavoidable.

5.4 Cumulative Impacts

Implementation and buildout of the proposed Specific Plan, in combination with other pending, approved, and reasonably foreseeable projects, would contribute to cumulative air quality, traffic and circulation, water supply, and energy supply as described below. Cumulative impacts related to population and housing are described in Section 5.3, above.

AIR QUALITY

The cumulative region of influence for air quality is the San Francisco Bay Area. Future development that would be facilitated by the implementation of the proposed Specific Plan would increase traffic levels along the local and regional transportation system. As described in Section 3.2, *Air Quality*, the vehicle emissions generated by the future development that would be facilitated by the proposed Specific Plan would exceed the air quality thresholds of the Bay Area Air Quality Management District, and would result in significant, but mitigable, impacts. Pending and approved projects in the City of Sunnyvale would also result in an increase in vehicle emissions and as a result, significant and unavoidable cumulative impacts would occur (refer to Section 3.2, *Air Quality*). The development of additional





projects within the City of Sunnyvale in the future would perpetuate additional air quality impacts from vehicle operations.

Future development that would be facilitated by the implementation of the proposed Moffett Park Specific Plan would potentially result in significant short-term construction related air quality impacts. These impacts are generally mitigated through adherence to Air Quality Control measures outlined by the Bay Area Air Quality Management District (BAAQMD). These standard measures have been developed to reduce construction related air quality impacts to a level considered less than significant. All approved and proposed projects would be subject to these standard measures. Therefore less than significant construction-related impacts would occur.

Development under the proposed Specific Plan, along with other anticipated Citywide, related and/or pending projects, would result in a cumulative air quality impact. Cumulative conditions would include future development under the proposed Specific Plan, increased development Downtown and increased development along Fair Oaks Avenue. Future Downtown development is anticipated to include an additional 8,500 square feet of office and 1,100 residential units. Future development along Fair Oaks Avenue would include 140,000 square feet of retail uses and 770 residential units. Despite implementing many strict controls, the San Francisco Bay Air Basin (SFAB) still fails to meet the Federal air quality standard for ozone (O_3) , and the State air quality standard for O_3 and fine particulate matter $(PM_{10})^1$. Because Federal and State pollution standards have not been achieved, the Basin is considered a non-attainment area for these pollutants. Development under the proposed Specific Plan, in combination with other development in the area, would have direct cumulative air quality impacts due to increased vehicle miles traveled and the ongoing nature of operational emissions and indirectly due to cumulative impacts of energy consumption. Mitigation of cumulative air quality impacts is accomplished at the regional, state and federal level through rules and regulations, as well as at the local level through each City's implementation of TDM programs and project-specific construction and operational measures. However, based on the existing volume of vehicles, traffic conditions and the amount of project related increase, development under the Specific Plan would generation a cumulatively considerable increase and would therefore be a significant and unavoidable impact.

TRAFFIC AND CIRCULATION

IMPACT 3.12-D

Implementation and subsequent buildout of the proposed Specific Plan in combination with other pending, approved, and reasonably foreseeable projects would result in potentially significant cumulative traffic impacts (Potentially Significant Impact).

Cumulative Conditions Forecast Methodology

The procedure to forecast the Cumulative Conditions using the City of Sunnyvale travel model was identical to the one used to determine General Plan and Preferred Alternative Conditions. The land use data for the Cumulative Conditions differ slightly in zones along Fair Oaks Avenue and the Downtown area of Sunnyvale compared to the Preferred Alternative Conditions. The zones along Fair Oaks Avenue would include an increase of 140,000 square feet in retail and 770 units in residential land uses. The Downtown zones changed would have an overall decrease of about 63,000 square feet in retail, and an



California Air Resources Board (CARB) Attainment Maps at: http://www.arb.ca.gov/desig/adm/sld001.htm



increase of 8,500 square feet in office and 1,100 units of residential land uses compared to the Preferred Alternative Conditions. The land use data in the Moffett Park area is the same as Preferred Alternative Conditions.

The Cumulative Conditions assumes the same roadway network as the General Plan and Preferred Alternative Conditions: Completion of the Mary Avenue Extension and all roadway projects that are committed in the Valley Transportation Plan (VTP) Capital Investment Program in Santa Clara County.

Again, the difference between the 1998 and 2020 Cumulative Conditions model volumes for both study freeway segments and intersections were calculated to determine the increment volumes. This traffic growth increment was added to the existing volumes for each study freeway segment and intersection to estimate the Cumulative Condition volumes. The volumes were reset to the existing count volumes if the projected volumes were less than existing levels.

Freeway Operations

Table 3.12-18 shows the freeway operations analysis for the Cumulative Conditions. The freeway operations under the Cumulative Conditions were evaluated using the same procedures and criteria as General Plan and Preferred Alternative Conditions above. The traffic levels under Cumulative Conditions would not cause any additional study freeway segments to operate at LOS F compared to Preferred Alternative Conditions.

An additional travel lane for each deficient freeway segment would be required to mitigate the Cumulative Conditions impacts.

Isolated Intersection Analysis

Traffic volumes at the study intersections under the Cumulative Conditions are shown in Exhibits 3.12-6A and 3.12-6B. The intersection operations for the Cumulative Conditions are summarized in Table 3.12-18.

Traffic under the Cumulative Conditions would not impact any additional study intersections compared to the Preferred Alternative Conditions. Most of the intersections that operate at LOS F under Preferred Alternative Conditions would have slight increases in average stop delay and volume-to-capacity ratios under Cumulative Conditions.

Coordinated Signal System Analysis

Tables 3.12-20 and 3.12-21 show the summary of Synchro and SimTraffic analysis results for the Cumulative Conditions. The Mathilda Avenue corridor intersections at Moffett Park Drive during both peak hours and at Route 237 Westbound Ramps in the AM peak hour would continue to operate at LOS F, as was the case under Preferred Alternative Conditions. The overall Mathilda Avenue signal system corridor would operate at LOS E and LOS D during the AM and PM peak hours, respectively, under the Cumulative Conditions.

Compared to 2020 General Plan and Preferred Alternative Conditions, the Cumulative Conditions would have potential queuing problems, based on the stop/vehicle and maximum queue/storage length ratios, at the following intersections:





- ❖ Mathilda Avenue & Route 237 Eastbound Ramps eastbound through/left and left in the AM peak hour
- ❖ Mathilda Avenue & Route 237 Westbound Ramps northbound left and through in the PM peak hour

However, as was the case under Preferred Alternative Conditions, only the westbound through/right movement at the intersection of Mathilda Avenue & Moffett Park would be impacted based on an excess queue of greater than 50 feet.

The analysis sheets are included in Appendix C of the Moffett Park Specific Plan Transportation Impact Analysis Study, located in Appendix F of this document (under separate cover).

<u>Mitigation 3.12-D</u> Refer to Mitigation Measures 3.12-A, 3.12-B, and 3.12-C (Significant and Unavoidable Impact).

The improvements required to mitigate the impacts under Cumulative Conditions are the same as those identified to mitigate the Preferred Alternative Conditions (refer to Mitigation Measures 3.12-A, 3.12-B, and 3.12-C. Like the traffic conditions of the Preferred Alternative, significant and unavoidable impacts would occur along freeway segments and the following isolated and coordinated signal systems despite the implementation of mitigation measures:

Isolated Intersections:

- Central Expressway and Oakmead Parkway (City of Santa Clara)
- Central Expressway and Bowers Avenue (City of Santa Clara)

Coordinated Signal Systems:

- ❖ Mathilda Avenue & Route 237 Eastbound Ramps eastbound through/left and left in the AM peak hour
- ❖ Mathilda Avenue & Route 237 Westbound Ramps northbound left and through in the PM peak hour

UTILITIES

Future development that would be facilitated by the implementation of the proposed Moffett Park Specific Plan would result in less-than-significant impacts related to water, electricity, natural gas, telephone, and cable. The proposed project would potentially have significant sewer system and long-term solid waste impacts. However, future projects in the Specific Plan area would require the construction of new sewer facilities and the implementation of a Solid Waste/Recycling Management Plan to mitigate potentially significant impacts. With mitigation, these potentially significant impacts would be reduced to less than significant levels.





On a project-by-project basis, development of the proposed and approved projects in the area, may result in increased demands upon existing utilities. In general, individual impacts of development projects are assessed and mitigated on a project-by-project basis. However, the pending and approved projects in the City of Sunnyvale, including the future implementation of the Moffett Park Specific Plan and the NASA Ames Development Plan, could result in cumulatively significant impacts on existing utility system as described below:

Water

Water supplies to serve the pending and approved projects in the City of Sunnyvale, including the future implementation of the Moffett Park Specific Plan and the NASA Ames Development Plan, as well as other existing developments in the region during drought years cannot be ensured (NASA Ames Development Plan Draft EIS). Therefore, potentially significant water supply impacts could occur in the region during a period of severe drought.

Energy

As the state continues to grow, demand continues to swell for energy required to operate and maintain the electricity needs of homes, businesses, and local governments. As a result, California has recently been struggling with a serious recurring energy crisis. During the early part of 2001, Northern California experienced back-to-back rounds of rolling blackouts caused by insufficient electricity to serve existing demand. However, electricity conservation, which a year ago showed little promise of success, not only flourished during the crisis, but has continued at a near double-digit pace during 2001 and into early 2002 (Los Angeles Times, State May Be Re-Energized, but Powerful Questions Remain, January 20, 2002). It would appear then, that while the California energy market remains volatile and susceptible to service shortages, that the energy crisis has been abated in the short term as future supplies have become contracted and secured. However, the cumulative effects of pending and approved projects in the region would further impact existing electrical utility supplies and may contribute to future rolling blackouts in the event of recurring statewide energy shortages. These impacts would, therefore, be considered potentially significant. To reduce cumulative energy impacts, additional electrical power plant facilities need to be constructed. In order to reduce energy demands generated by future projects, the projects would be required to adhere to energy conservation measures under Title 24 of the California Administrative Code. The individual impacts of other pending and approved projects would be assessed and mitigated on a project-by-project basis.

